

REMARKS

Claims 26-38 are pending in the application. Claims 26, 27, and 29-31 stand rejected under 35 U.S.C. 102(e) as being anticipated by Grieger. Applicant requests reconsideration.

Claim 26 sets forth a CMP method that includes, among other features, applying a CMP slurry containing substantially dispersed, solid abrasive material to a substrate, polishing the substrate with the slurry, applying to the substrate a surfactant containing material that exhibits a characteristic of decreasing a settling time for the abrasive material in an aqueous dilution of the slurry, and removing at least a majority portion of the abrasive from the substrate. Page 2 of the Office Action alleges that Grieger discloses each and every limitation of claim 26. Applicant traverses.

Page 2 of the Office Action alleges that the TMAH in an aqueous HF cleaning composition constitutes a material that exhibits the claimed characteristic of decreasing a settling time. However, column 12, lines 36-50 of Grieger relied upon by the Office does not contain any express or even an implied teaching of decreasing a settling time. The relied upon text merely states that, when the substrate being etched contains doped silica and undoped silica, the cleaning composition dissolves (etches) doped silica preferentially to undoped silica. Such a teaching does not in any way constitute disclosure of a surfactant containing material that decreases a settling time for the CMP slurry abrasive material. At least for such reason, Grieger fails to disclose every limitation of claim 26.

In addition, column 10, lines 18-25 of Grieger state that the cleaning composition suspends, disperses, and/or dissolves planarization residue. Applicant notes that

09/990,706

suspending or dispersing planarization residue does not decrease a settling time for abrasive material in a CMP slurry. Instead, suspending or dispersing abrasive material in a CMP slurry has the effect of increasing settling time, as discussed in the Example of the present specification beginning on page 11. Such Example discusses CMP slurries and/or surfactants that disperse abrasive material and/or produce a high amount of suspended solids, yielding poor settling times. Also, Applicant notes that the Grieger process of dissolving planarization residue does not disclose decreasing a settling time for solid, abrasive material in a CMP slurry. If solid, abrasive material in a CMP slurry is dissolved, then it is impossible for the dissolved abrasive material to settle in an aqueous dilution of the slurry. Instead, the abrasive material becomes part of the liquid phase of the CMP slurry and remains in the liquid phase without settling. At least for such additional reasons, Grieger fails to disclose every limitation of claim 26.

Claims 27 and 29-31 depend from claim 26 and are not anticipated at least for such reason as well as for the additional limitations of such claims not disclosed. For example, claim 30 sets forth that complexing between at least a portion of the abrasive material and the surfactant forms floccule. Page 2 of the Office Action alleges that column 13, lines 39-41 of Greiger discloses complexing and forming floccule. However, the relied upon text merely states that planarization residue 20 dissolves or becomes suspended in the bath 22 of cleaning solution. Dissolving clearly does not form floccule. Becoming suspended in the cleaning solution further does not form floccule as may be clearly appreciated from the Example beginning on page 11 of the present specification. Floccule generally settle whereas suspended solids by definition have not

09/990.706


settled. Applicant requests allowance of claims 26, 27, and 29-31 in the next Office Action.

Claims 28 and 32-38 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Grieger. Applicant requests reconsideration. Grieger qualifies as prior art only under 35 U.S.C. 102(e) and cannot preclude patentability of claims 28 and 32-38 since Grieger and the claimed inventions were, at the time the present invention was made, owned by Micron Technology, Inc. or subject to an obligation of assignment to Micron Technology, Inc. At least for such reason, claims 28 and 32-38 are patentable over Grieger.

Applicant herein establishes adequate reasons supporting patentability of claims 26-38 and requests allowance of all pending claims in the Office Action.

Respectfully submitted,

Dated: 04 May 2004

By: 
James E. Lake
Reg. No. 44,854